# Management Strategies for Urban Stream Rehabilitation in the Pacific Northwest

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## Abstract
Physical, hydrological, social, and biological conditions were evaluated at 45 stream sites in the Puget Lowland of western Washington with urban development as their dominant human activity. Using the benthic index of biotic integrity (B-IBI) as our biological indicator, we found a progressive decline in B-IBI with increasing watershed imperviousness but with large site-to-site differences at any given level of imperviousness in the contributing watershed. This variability is greatest at low to moderate levels of development; no threshold effects are apparent. Instream biological condition also varied directly with a new stream flow metric, showing significantly better correlations than with imperviousness. We also found a wide range of landscape conditions, some very degrading, in the backyards adjacent to these streams. These data do not suggest that the full range of ecological conditions can be replaced in a now-degraded urban channel; thus key management tasks are to identify those watersheds where low urbanization and associated high-quality stream conditions warrant protection, and to develop new management goals for those watersheds whose surrounding development precludes complete ecosystem restoration but in which some recovery might be possible. There is no rational basis to support a common strategy in all watersheds, developed and undeveloped alike.